THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

TOWN OF UXBRIDGE

COUNTY OF ONTARIO

1964

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DIVISION OF SANITARY ENGINEERING

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INTRODUCTION

A water pollution survey of the Town of Uxbridge was performed on April 15 and May 27, 1964. Surveys of this type are performed by the Ontario Water Resources Commission for the purposes of locating and recording sources of existing and potential water pollution. Recommendations are made concerning the abatement of these sources to the parties concerned.

An investigation similar to this was made by Commission staff during 1958.

PERSONS INTERVIEWED

The following officials were contacted:

Mr. J. L. Lumgair, Municipal Clerk,
Mr. J. R. Cameron, Works Superintendent,
Mr. E. Long, Sewage Treatment Plant Operator,
Mr. J. Robson, Chief Public Health Inspector,
Ontario County Health Unit.

THE TOWN OF UXBRIDGE

General

Centrally located in the County of Ontario, the Town of Uxbridge is situated on Hwy. No 47 approximately 16 miles due south of Lake Simcoe. According to the 1964 Municipal Directory, the assessed population is 2673.

Drainage

Drainage for the town is provided by Uxbridge Brook. The headwaters of Uxbridge Brook rise in three branches just south of the municipality. The Middle Branch joins the Main Branch within the town, wherefrom the watercourse flows in a northerly direction to its confluence with Pefferlaw Brook and thence to Lake Simcoe.

Water Supply

Four drilled wells provide water by gravity to underground reservoirs from which water is pumped untreated to the municipal

water mains. This supply is to be augmented by a proposed 450 gpm well. Elgin Pond, which is part of the upstream section of Uxbridge Brook, is the present auxiliary source.

Sewer System

Separate sewer systems are utilized. Sanitary wastes are conducted by the sanitary sewer system to the sewage treatment plant.

The storm sewers discharge mainly to the various branches of Uxbridge Brook.

Sewage Treatment Facilities

The municipal sewage treatment plant uses the biological filter process. The effluent from the plant is discharged to Uxbridge Brook. An emergency by-pass arrangement permits the discharge of raw sewage to this watercourse as well.

For some time, the treatment efficiency of the plant has been considerably reduced due to the discharging of concentrated quanitities of toxic industrial wastes to the sanitary sewers. Samples of the effluent have shown that treatment of these chemical wastes is minimal and noteworthy concentrations are being discharged to Uxbridge Brook. In addition to this, the plant is hydraulically overloaded.

Extensions presently being made to the plant will result in a capacity increase from 125,000 gpd to 475,000 gpd. Presumably, this should eliminate the overloading problem as well as providing a better degree of sewage treatment.

Industry

Listed below are the principal industries located in the Town of Uxbridge :

Name of Firm	Product
Uxbridge Concrete Products	Precast Concrete Block, et.

C.Y. & C. Welding	Machines, Building and Repairs
Comco Stampings	Metal Stamping
Comco Electroplating	Metal Plating
Fritz W. Glitsch	Oil Refining Equipment, Radiators, etc.
Industrial Tannery	Tannery
Montgomery Manufacturing	Wooden Wares
Ursini Plastics	Plastic Novelties
Harmac Engineering	Tools and Dies
Uxbridge Printing Company Ltd.	Custom Printing
Uxbridge Creamery	Milk Products
Uxbridge Dairy	Milk Products

Wastes from these industries are generally discharged to the sanitary sewers.

Although the Uxbridge Creamery has secured a connection to the sanitary sewer system, industrial wastes are being discharged to the Middle Branch of Uxbridge Brook.

The Fritz W. Glitsch Company has an industrial waste discharge to the West Branch of Uxbridge Brook.

Recreation

Fairly extensive use is made of Elgin Pond for swimming purposes.

SAMPLING PROCEDURE

Samples were collected from Uxbridge Brook and from evident discharges to the watercourse. Bacteriological examination and sanitary chemical analysis were performed at the OWRC laboratory in Toronto. The sample results are recorded in the appendix to this report. A map of the Town of Uxbridge showing the sample point locations is also appended.

During the initial sampling, the weather was overcast with intermittent showers. Sunny weather prevailed on May 27, 1964.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY RESULTS

The analyses employed in this investigation to assess the quality of outfall discharges and surface waters were: biochemical oxygen demand (BOD), suspended solids, the total coliform count, as well as other specific tests.

The BOD of sewage, industrial wastes or polluted waters, is the oxygen required during stabilization (natural purification in a stream) of the decomposable organic or chemical material by aerobic biochemical action. A five-day BOD determination with incubation at 20 degrees Centigrade is reported. A high BOD is indicative of organic or chemical pollution. A desirable upper limit in surface water is four (4) parts per million (ppm).

Suspended solids are reported in parts per million and indicate the measure of undissolved solids of organic or inorganic nature.

The total coliform count is employed to obtain an enumeration of coliform organisms, and the number is reported per 100 millilitres (ml.) of the sample. The membrane filter technique was used in the examination of these samples. A maximum limit of 2,400 coliform organisms per 100 ml. is the OWRC objective for the bacteriological quality of surface water in Ontario.

Additional specific analyses were performed, when deemed necessary, to evaluate other aspects of water quality. Some of these analyses include tests for the presence of chrome, copper, ether solubles, cyanide, as well as pH values.

Below are listed some of the pertinent maximum allow-

able concentration limits of contaminants in storm sewers, sewage treatment plant, and industrial waste discharges. Adequate protection for surface waters, except in certain specific instances influenced by local conditions, should be provided if the following concentrations and pH range are not exceeded.

5-Day BOD	15 ppm
Suspended Solids	15 ppm
Phenol	20 ppb
Iron	17 ppm
Oil (Ether Solubles)	15 ppm
pH range	5.5 to 10.6

SAMPLE RESULTS

During the initial investigation, the spring freshet was occurring, and some of the generally high coliform counts may be attributed to run-off. In some instances, flows yielding these high counts were not evident during the second sampling period.

Generally satisfactory conditions with respect to the sanitary quality of the water were noted in the upstream sections of Uxbridge Brook. However, a deterioration of water quality is evident as it flows through the town.

POLLUTION SOURCES

On the basis of the sample results the following sources of potential and/or existing pollution are noted.

Municipal Storm Sewers

Sample point No. P.U. 20.8-W is a storm sewer discharge to the south bank of Uxbridge Brook on the east side of Main Street North. The excessive BOD values and coliform contents in this discharge suggest the presence of sanitary wastes.

A storm sewer which discharges to the east bank of Uxbridge Brook between Brock Street and Dominion Street is designated as sample point No. P.U. 21.1-W. Objectionable wastes are present in this flow; however, it is reported that this discharge

will be terminated by a connection to the sanitary sewer.

P.U.M.21.7-W is where a storm sewer discharges to the east bank of the Middle Branch of Uxbridge Brook on the south side of Mill Street. Visual evidence as well as the adverse laboratory results indicate that sewage flows are contained in this discharge.

Industrial Wastes

The Uxbridge Creamery continues to discharge untreated industrial wastes to the Middle Branch of Uxbridge Brook. Wastes from this firm are pumped to the sanitary sewer; however, when the pump is not operated, the resulting overflow discharges to the watercourse. Judicious control over the operation of the pumping equipment is required at all times in order to ensure that the overflow does not occur.

The Fritz W. Glitsch Company which manufactures various metal products has an industrial waste discharge to two ponds of unknown depth, measuring approximately ten feet by ten feet. The secondary pond discharges to the West Branch of Uxbridge Brook. This waste consists mainly of water from boilers, roof drains, hoses, and cooling waters. Intermittent discharges of an acid cleaner and an alkaline cleaner are allowed to mix with this water. Reportedly, the excessive quantities of oil formerly contained in this flow have been removed. A slightly excessive ether soluble count of 17 ppm was noted in the initial sample.

The Uxbridge Tannery, established in 1961 and located on Toronto Street North, has an industrial drain to the West Branch of Uxbridge Brook. Due to a recent fire in the premises, tanning operations have ceased and therefore, no flow was noted in this drain. The operation now consists mainly of working with finished

leather; however, it is anticipated that tanning on a minimal basis will be commenced at some future date.

It should be ensured that inadequately treated wastes from this operation do not gain access to the creek.

Sewage Treatment Plant

As previously mentioned, the treatment efficiency of the plant has been considerably reduced by toxic chemicals contained in the sanitary sewage. In addition, the newly installed chlorination facilities were not yet in use. Samples collected from the plant outfall and the plant by-pass, reveal these discharges to be considerably in excess of Commission objectives. The downstream sample shows the adverse effect on Uxbridge Brook.

COMPARISON WITH SURVEY OF 1958

Overall, pollution in Uxbridge appears to be generally the same as noted during the 1958 survey, although some changes are apparent. Pollution resulting from the storm sewer discharge opposite Poplar Street has been eliminated by connecting this sewer to the sanitary sewer system. During this survey, objectionable wastes were noted in two other storm sewer discharges. The establishment of the Uxbridge Tannery creates a potential pollution source. Extensions being made to the municipal sewage treatment plant should increase its efficiency and thereby provide a greater degree of protection for Uxbridge Brook.

RECOMMENDATIONS

1. Contaminated flows should be eliminated from the municipal storm sewer discharges.

2. The operation of the sewage treatment plant should be maintained to meet the OWRC objectives for waste discharge. Enforcement of a by-law for the control of industrial wastes

being discharged to the sanitary sewers would assist in achieving these objectives.

3. Untreated industrial wastes from the Uxbridge Creamery should not be discharged to Uxbridge Brook.

4. The Fritz W. Glitsch Company should ensure that its industrial waste discharge will not adversely affect the quality of the waters of Uxbridge Brook.

5. If and when tanning operations are commenced at the Uxbridge Tannery, it should be ensured that inadequately treated wastes will not be discharged to Uxbridge Brook.

All of which is respectfully submitted,

District Engineer: J. K. Theil
J. K. Theil

Approved by: _____
K. H. Sharpe, Director

/mh

WATER POLLUTION SURVEY

TOWN OF UXBRIDGE

1964

SAMPLE POINT NUMBER	DATE	DESCRIPTION OF SAMPLING POINTS	5-DAY BOD PPM	SOLIDS TOTAL	SOLIDS SUSP.	SOLIDS DISS.	TOTAL COLIFORMS PER 100 ML.
P. U. 20.6	APRIL 15	UXBRIDGE BROOK 500 FEET DOWNSTREAM OF S.T.P. CYANIDE AS HCN - 0.4 CHROME AS CR. - 0.06 COPPER AS CU. - 0.1 ETHER SOLUBLES - 0	6	252	14	238	8,000
P.U. 20.7-T	APRIL 15	OUTFALL FROM S.T.P. CYANIDE AS HCN - 0.6 COPPER AS CU - 0.5 CHROME AS CR. - 0.54 ETHER SOLUBLES - 0	27	668	42	626	69,000
P.U. 20.7-S	APRIL 15	S.T.P. BY-PASS OUTFALL CYANIDE AS HCN - 0.6 COPPER AS CU - 0.5 CHROME AS CR. - 0.80 ETHER SOLUBLES - 10	100	518	62	456	140,000
P.U. 20.8	APRIL 15	UXBRIDGE BROOK AT MAIN STREET NORTH					54,000
	MAY 27						5,000
P.U. 20.8-W	APRIL 15	STORM SEWER TO S. BANK OF UXBRIDGE BROOK E. SIDE OF MAIN ST. NORTH	1	532	5	527	6,300
	MAY 27		6.7	536	10	526	4,000,000
P.U. 21.0	APRIL 15	UXBRIDGE BROOK AT DOMINION STREET BRIDGE					1,700

APPENDIX

SAMPLE POINT NUMBER	DATE	DESCRIPTION OF SAMPLING POINTS	5-DAY BOD PPM	SOLIDS TOTAL	SOLIDS SUSP.	SOLIDS DISS.	TOTAL COLIFORMS PER 100 ML.
P.U. 21.0-I		INDUSTRIAL WASTE OUTFALL FROM UXBRIDGE TANNERY	NO FLOW				
P.U. 21.1-W	APRIL 15	STORM DRAIN TO E. BANK OF UXBRIDGE BROOK BETWEEN BROCK AND DOMINION STREETS					57,000
	MAY 27		7.2	536	33	503	60,000
P.U. 21.2-W		STORM SEWER TO E. BANK OF UXBRIDGE BROOK OPPOSITE POPLAR STREET	NO FLOW				
P.U. 21.3	APRIL 15	UXBRIDGE BROOK ABOVE POPLAR ST.					500
P.U. 21.5	APRIL 15	UXBRIDGE BROOK AT BASCOM ST.					48
P.U. 21.7	APRIL 15	UXBRIDGE BROOK AT MAIN ST. SOUTH	1.1	214	5	209	26
P.U.M. 21.6	APRIL 15	MIDDLE BRANCH OF UXBRIDGE BROOK AT POND ST.					470
P.U.M. 21.7-I	APRIL 15	DISCHARGE FROM UXBRIDGE CREAMERY TO MIDDLE BRANCH OF UXBRIDGE BROOK	265	430	130	300	7,500,000
P.U.M. 21.7-W	APRIL 15	STORM SEWER TO E. BANK OF MIDDLE BRANCH, S. SIDE OF MILL STREET	5	586	158	428	51,000
	MAY 27		220	1148	264	884	80,000,000
P.U.M. 21.8-W		STORM SEWER TO N. BANK, UNDER MILL STREET	NO FLOW				
P.U.M. 22.0	APRIL 15	MIDDLE BRANCH OF UXBRIDGE BROOK AT JAMES STREET	2	206	15	191	142
P.U.M. 22.1	APRIL 15	MIDDLE BRANCH OF UXBRIDGE BROOK AT COOPER STREET					54

SAMPLE POINT NUMBER	DATE	DESCRIPTION OF SAMPLING POINTS	5-DAY BOD PPM	SOLIDS TOTAL	SOLIDS SUSP.	SOLIDS DISS.	TOTAL COLIFORMS PER 100 ML.
P.U.W. 20.5	APRIL 15	WEST BRANCH OF UXBRIDGE BROOK 200 FEET BELOW GLITSCH OUTFALL PH AT LAB. - 8.1 ETHER SOLUBLES - 0 ALKALINITY AS $CaCO_3$ - 148	1.4	234	14	220	3,700
	MAY 27		1.4	286	3	283	1,120
P.U.W. 20.5-1	APRIL 15	DRAIN FROM FRITZ W. GLITSCH CO. TO WEST BRANCH OF UXBRIDGE BROOK PH AT LAB. - 7.7 ETHER SOLUBLES - 17 ALKALINITY AS $CaCO_3$ - 204	9	392	44	348	310
	MAY 27	ETHER SOLUBLES - 0.0	2.5	262	15	247	3,000
P.U.W. 21.2	APRIL 15	WEST BRANCH OF UXBRIDGE BROOK AT KING STREET					3,300
	MAY 27		1.1	312	5	307	10,000
P.U.W. 21.3-W	APRIL 15	STORM SEWER AT N. SIDE OF BROCK ST. TO EAST BANK OF THE WEST BRANCH					7,000
	MAY 27		1.1	282	7	275	1,700
P.U.W. 21.3-D	APRIL 15	DITCH AT N. SIDE OF BROCK ST. TO WEST BANK OF WEST BRANCH	0.8	432	23	409	17,000
	MAY 27	NO FLOW					
P.U.W. 21.4	APRIL 15	WEST BRANCH OF UXBRIDGE BROOK UPSTREAM FROM BROCK ST. BRIDGE					30,000
	MAY 27						2,300
P.U.W. 21.6	MAY 27	WEST BRANCH OF UXBRIDGE BROOK AT RAILROAD BRIDGE ABOVE BROCK STREET	1.2	318	1	317	92

TOWN OF UXBRIDGE

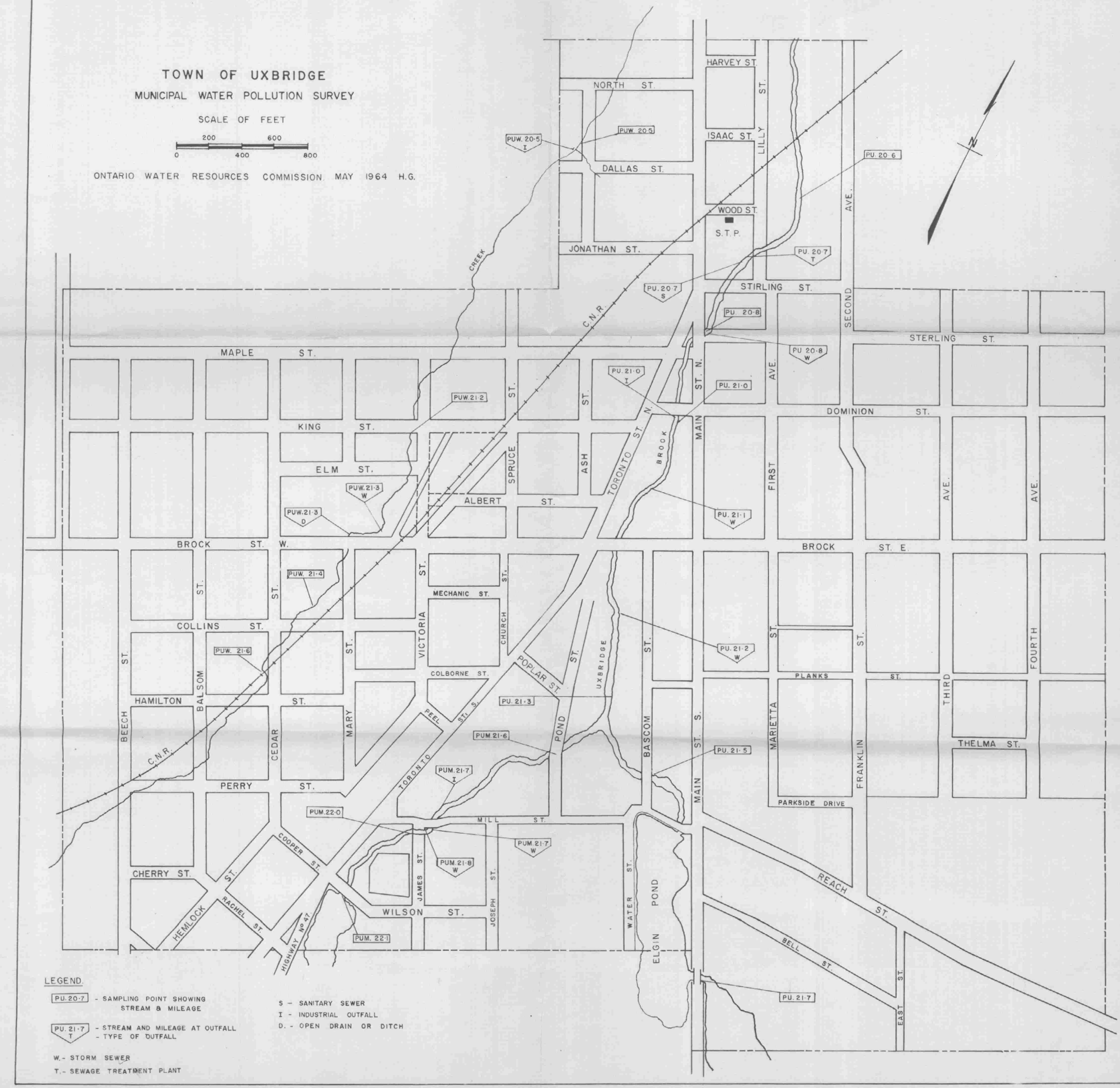
MUNICIPAL WATER POLLUTION SURVEY

SCALE OF FEET

200 600

0 400 800

ONTARIO WATER RESOURCES COMMISSION MAY 1964 H.G.



LEGEND.

PU. 20-7 - SAMPLING POINT SHOWING STREAM & MILEAGE

PU. 21-7 T - STREAM AND MILEAGE AT OUTFALL - TYPE OF OUTFALL

W.- STORM SEWER

T.- SEWAGE TREATMENT PLANT

S - SANITARY SEWER

I - INDUSTRIAL OUTFALL

D. - OPEN DRAIN OR DITCH